

Fig. 1

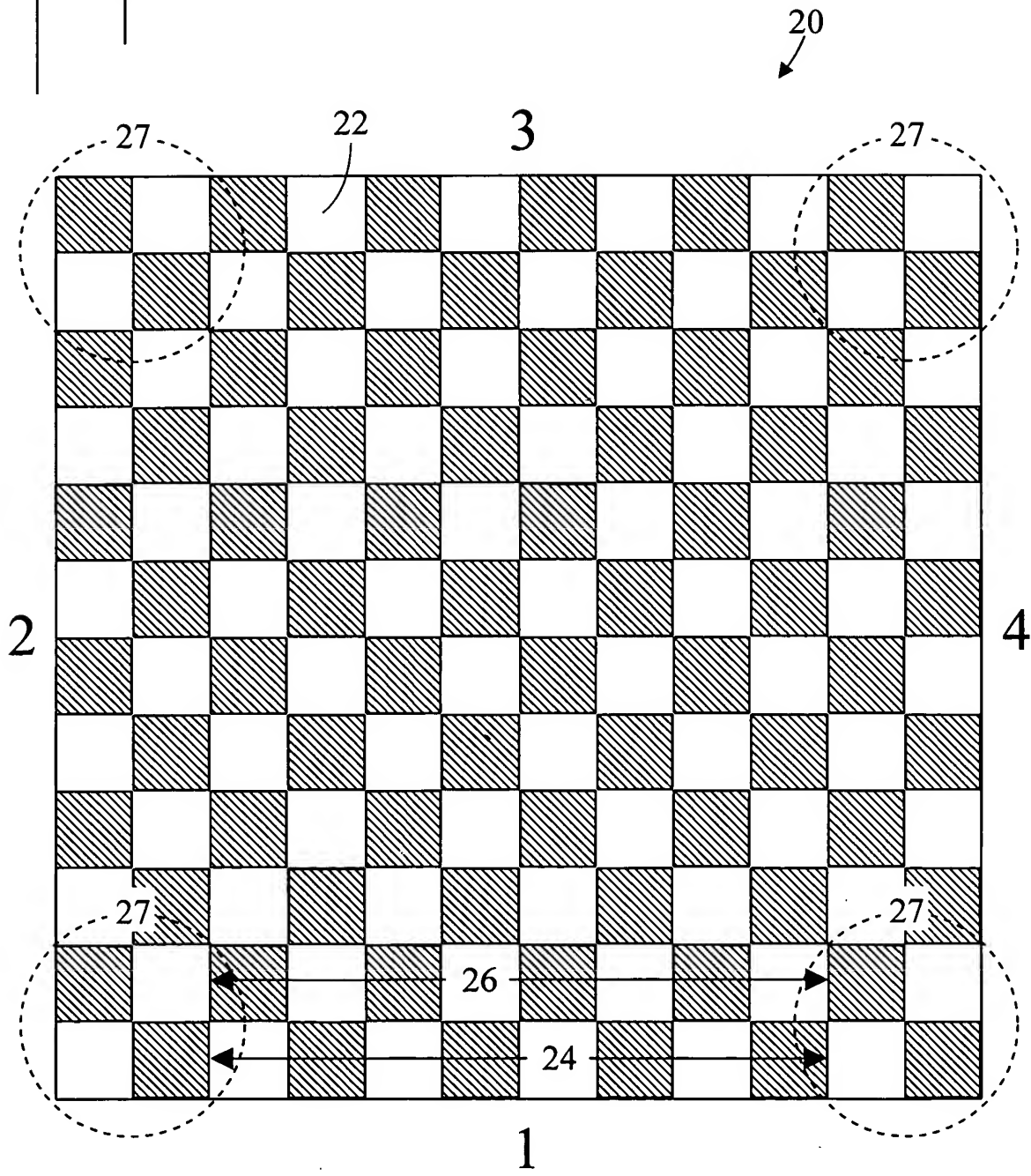


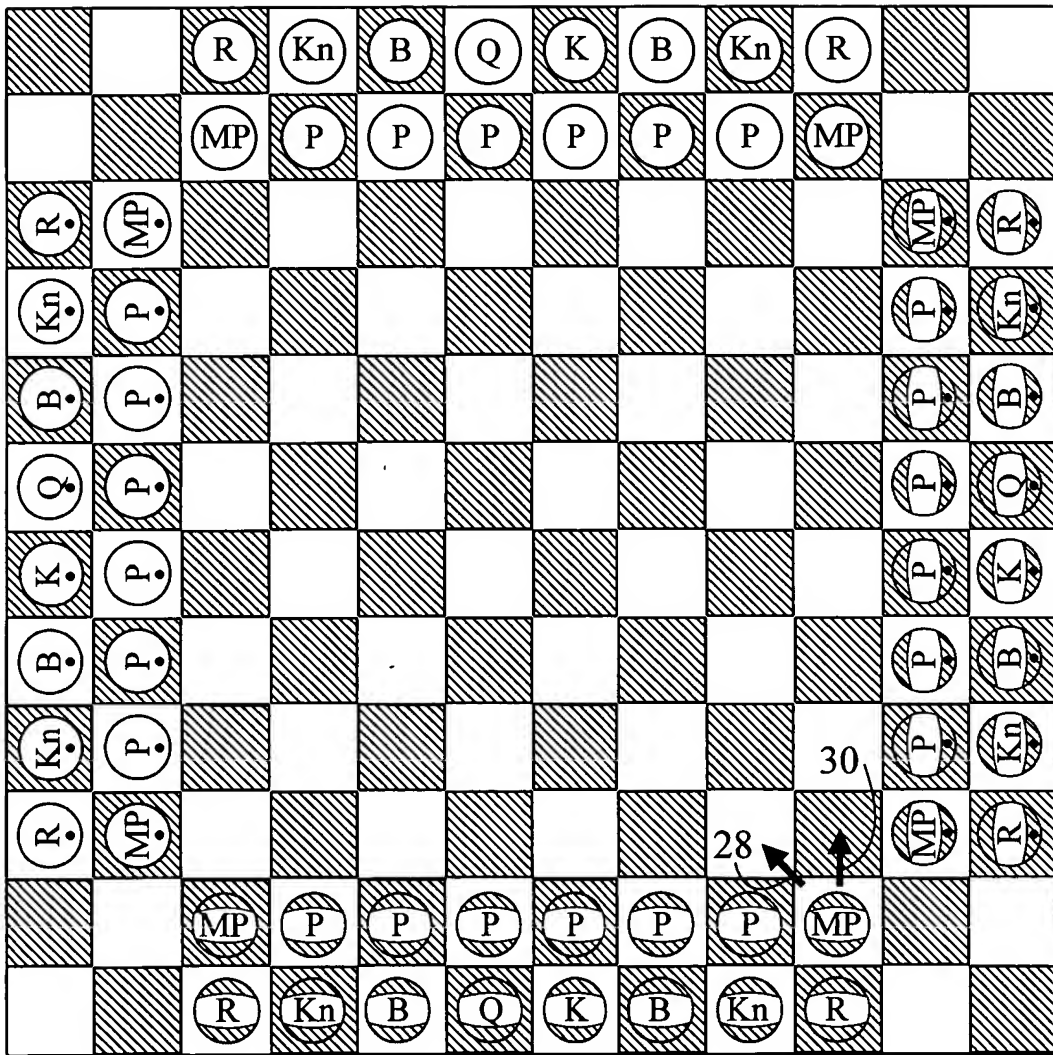
Fig. 2

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4



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Fig. 3

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4

1

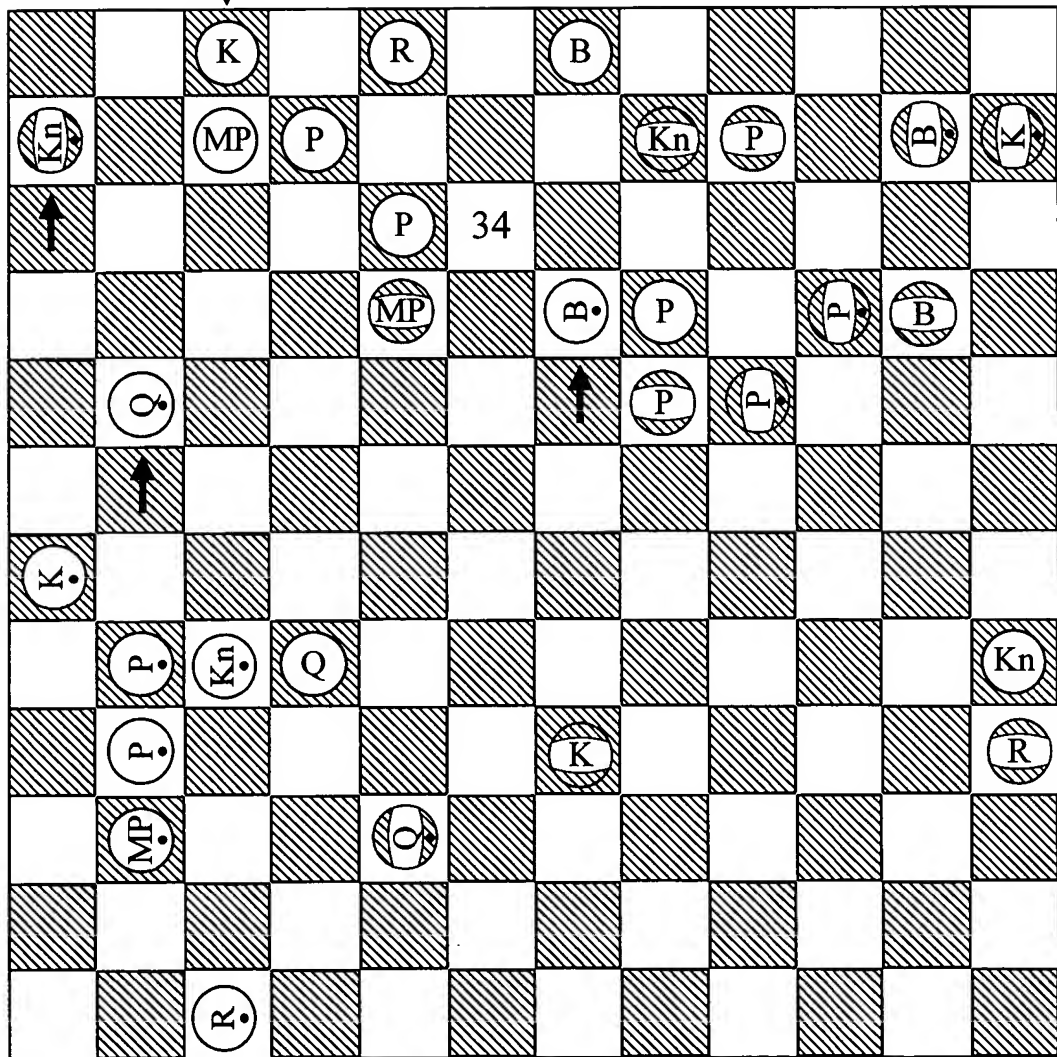


Fig. 4

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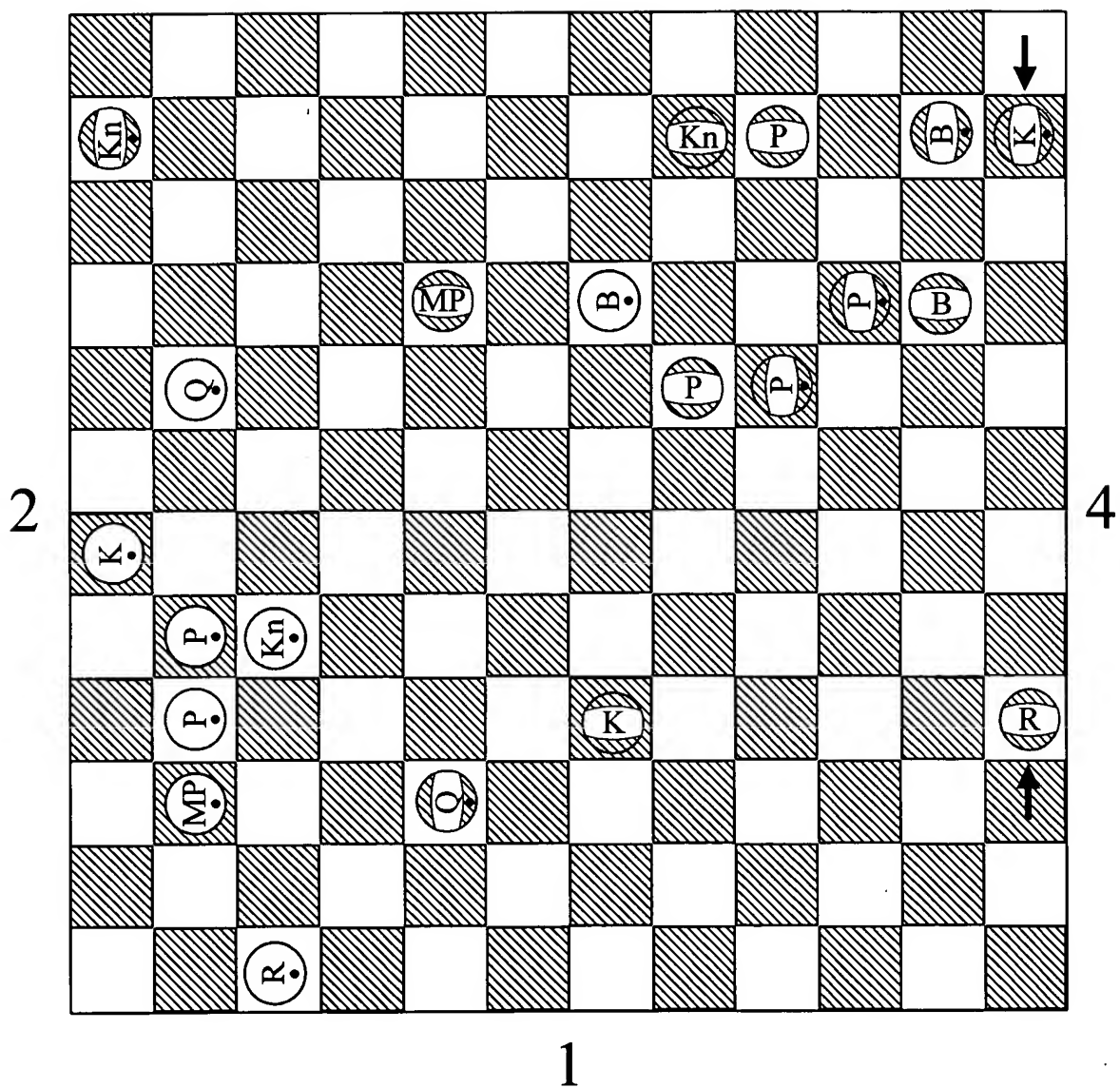


Fig. 5

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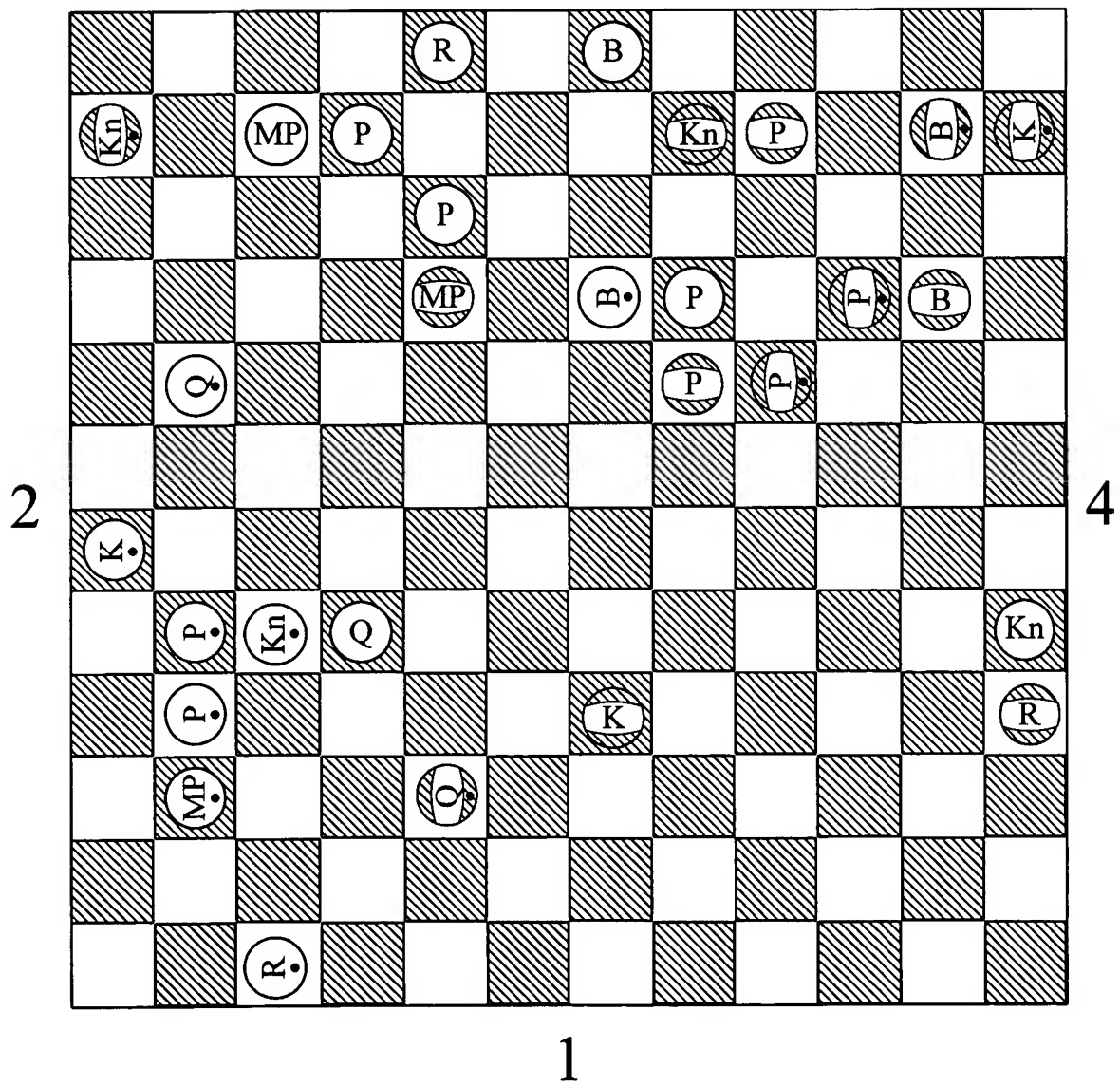
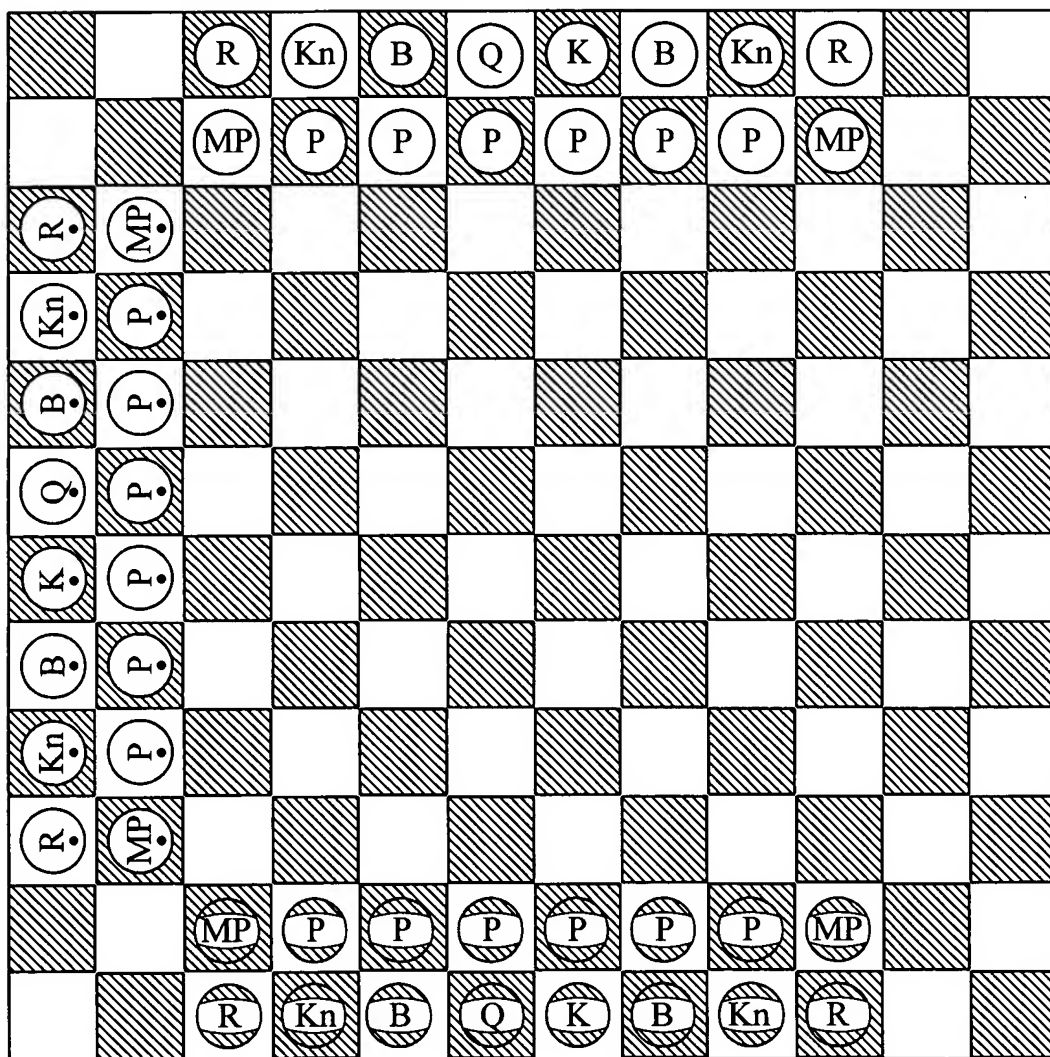


Fig. 6

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Fig. 7

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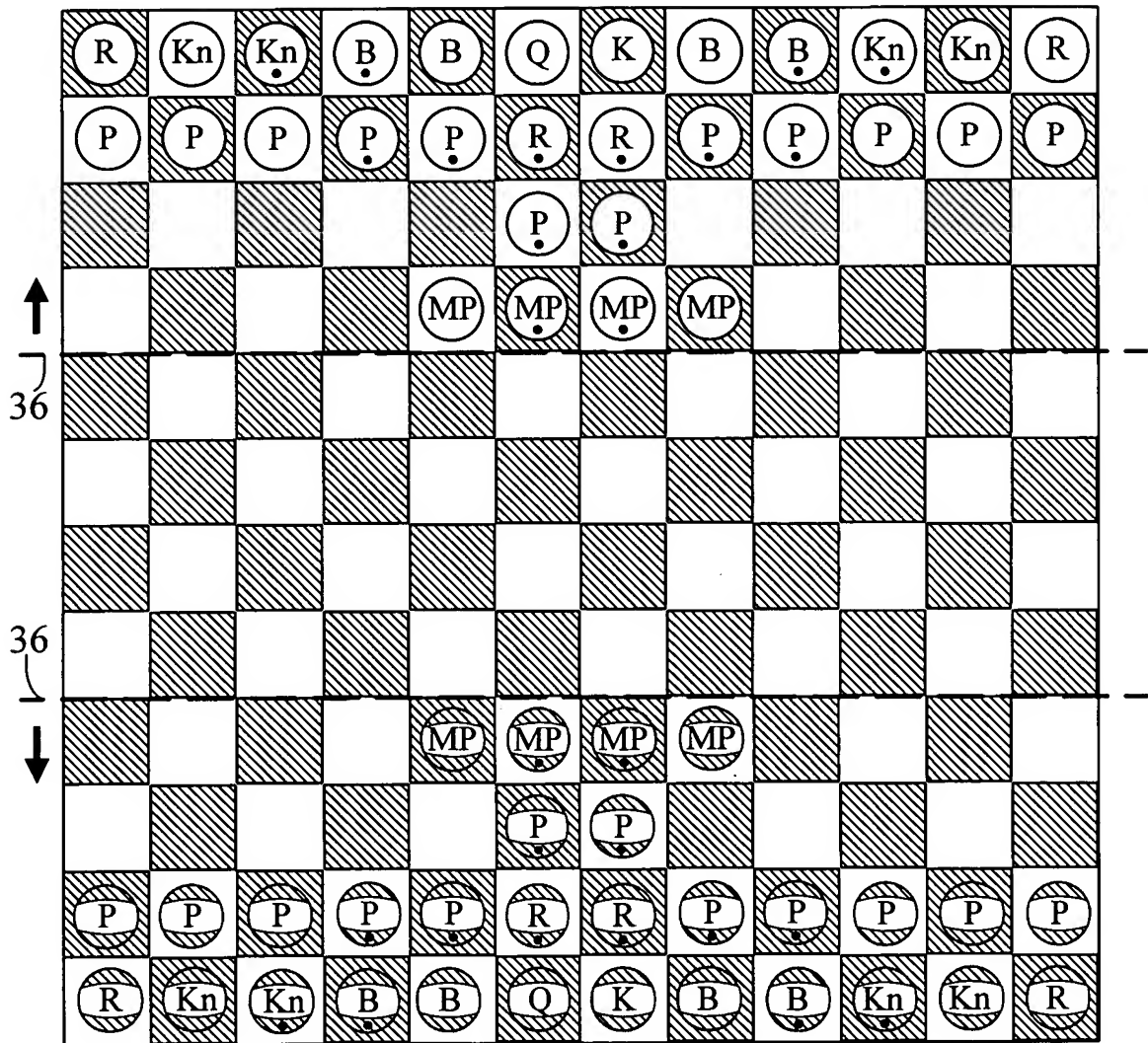
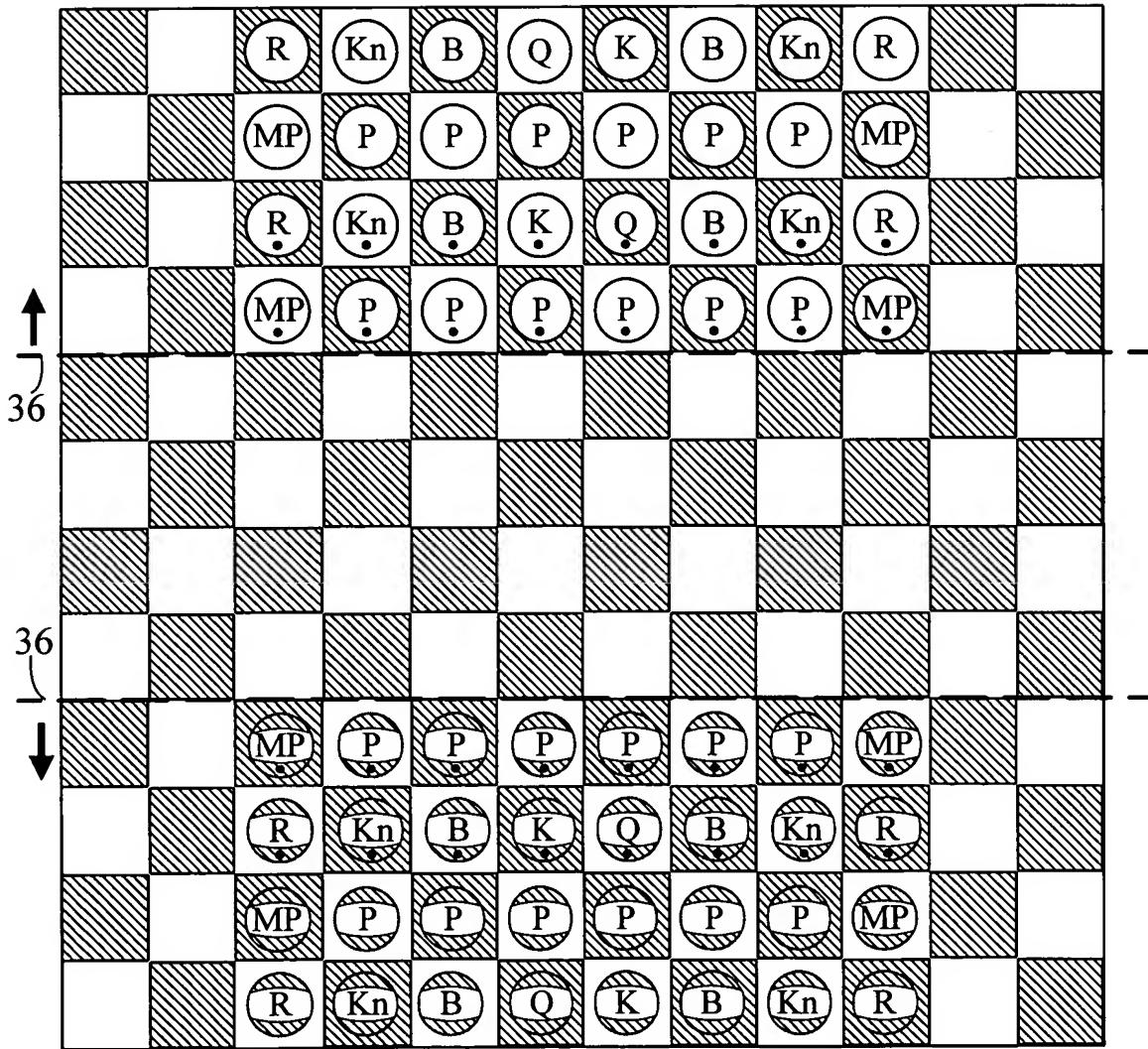


Fig. 8

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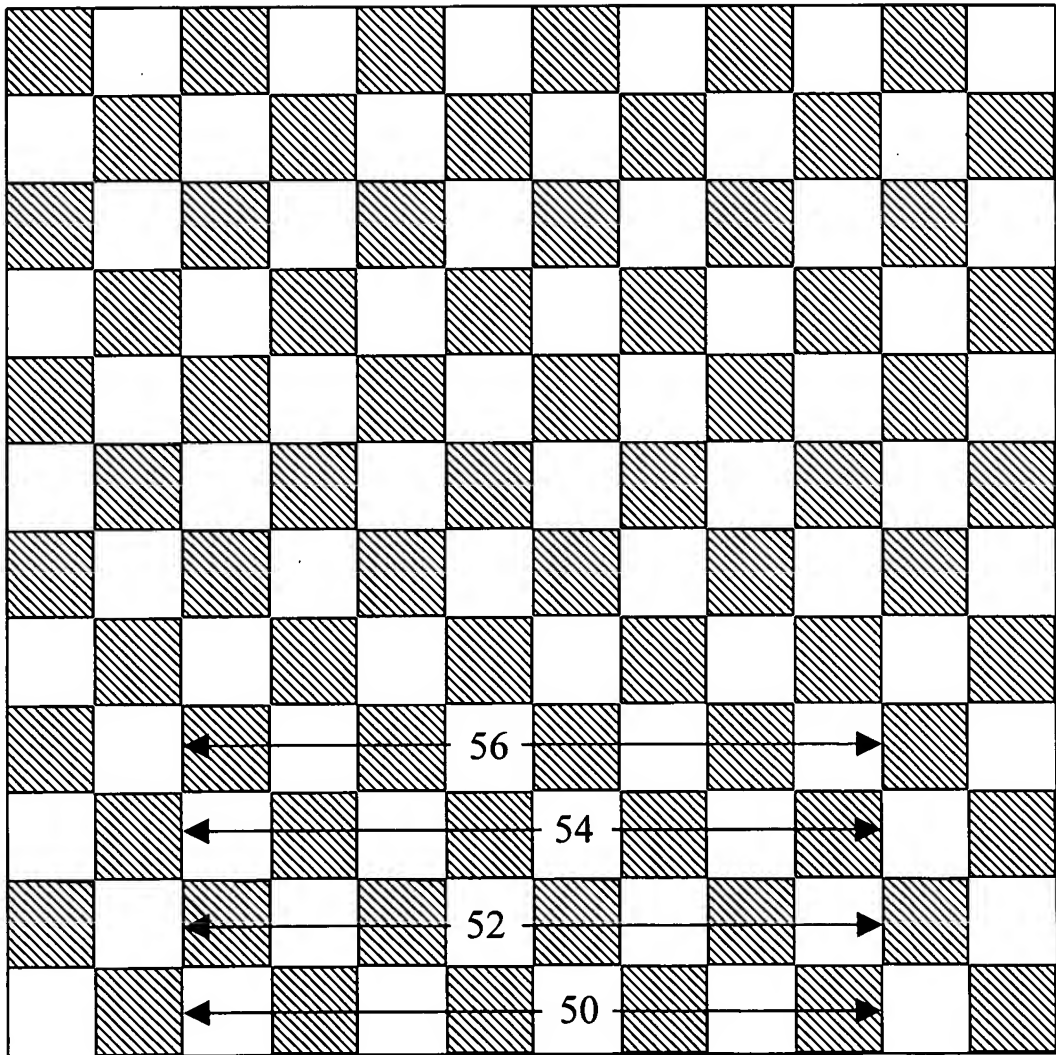


Figure 1 illustrates a 1D chain of  $N$  particles. The chain is represented by a horizontal line with  $N$  particles, each labeled with a number from 1 to  $N$ . The particles are connected by springs. The diagram shows the initial state (left) and the final state (right) after a perturbation. The initial state shows a localized perturbation at the left end, while the final state shows the perturbation spreading across the chain. The diagram is labeled with  $N$  and  $1$  at the ends of the chain.

Fig. 10

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